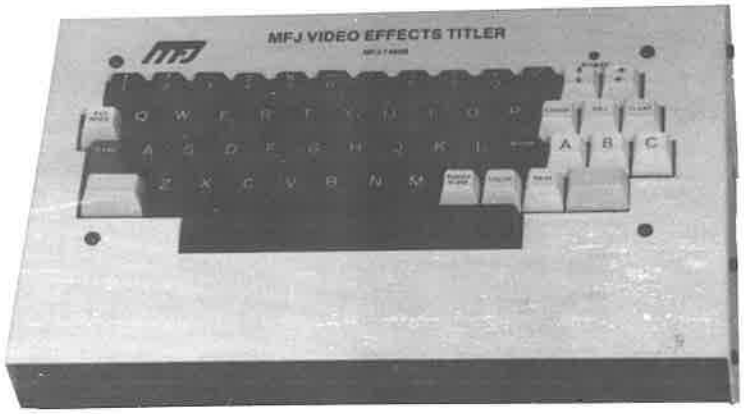

MFJ VIDEO EFFECTS TITLER

MODEL MFJ-1480B

OWNER'S MANUAL

CAUTION: Read All Instructions Before Operating Equipment.

MFJ ENTERPRISES, INC.

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VIDEO EFFECTS TITLER (VET)
OWNER'S MANUAL

You are about to use one of the most innovative tools available in the video field. By combining your creativity and an understanding of how to use the VET, you should be able to create impressive video productions.

The VET was designed to operate with a standard NTSC external video signal from a camera, VCR, or video disk. When in the External mode, the VET operates within the NTSC standard and can be recorded on 1/2 inch VCRs. The VET has a non-NTSC internal sync generator and can be operated without a camera or external video source. However, the VET's video image may not record well using the internal sync generator. If quality is not acceptable, a standard NTSC external video signal (such as a color video camera) can be used to operate the VET within the NTSC standard.

CABLES - Because of the variety of ways that the VET can be hooked up, no cables were provided with the unit. Before you buy any cables or start hooking up equipment, it would be a good idea to gather up all your audio and video cables and the owners manuals for your video equipment and sketch out a cable configuration. For the best results, you should be using high quality 75 ohm shielded coax cables with RCA phono plugs at each end.

VET VIDEO TO VCR CONNECTION - The first and the only mandatory connection is between the VET and a VCR(or a monitor if you are composing titles for later recording). Connect the VET's VIDEO-OUT to the VIDEO-IN of your VCR or monitor. Your VCR should be connected to a TV or monitor as specified in your VCR operating manual.

CAMERA CONNECTION - The VET was designed to operate with a color video camera equipped with a 10-pin connector used with the VHS format VCRs. It is preferable that the VET be turned off before connecting the camera but it is not necessary. If the VET is on when connecting the camera, try not to jiggle the connection while screwing in the retaining ring. This could power the camera on and off and put unnecessary stress on the camera components. If you intend to mix the video camera signal with the VET image, be sure the external source switch on the back of the VET is set to the camera input.

VET CAMERA AUDIO CONNECTIONS - There are several different ways that the VET's camera audio outputs may be connected to a VCR. Read your VCR and camera operating manuals to determine which approach is applicable. If your camera and VCR are not the same brand, additional effort may be required to get things set up properly.

"MIC" Audio Inputs - Some portable VCRs have "MIC" inputs(microphone). These inputs can be mono or stero and are usually "high impedance". "High impedance" inputs are very sensitive and can be over-driven when "line" signals are connected. Many portable VCRs include a special cable called an "attenuator" that matches "line" outputs with "MIC" inputs. Check your VCR operating manual.

The "MIC" input to your VCR may be stereo which will require a stereo microphone plug. Another situation may exist where the use of the attenuator actually blocks your camera's audio signal and no audio signal gets recorded. If this happens, you will need a phono-to-MIC converter without an attenuator.

Audio-In - Most console and some portable VCRs have stereo(left and right) or mono audio inputs with RCA phono jacks. You should be able to directly connect the VET's camera audio output(s) to the Audio-In connection(s) of the VCR. Be sure you read your VCR operating manual to get these connections and any necessary switch settings correct.

VET EXTERNAL VIDEO INPUT CONNECTION - Connect the VIDEO-OUT signal from a second VCR or video disk to the External VIDEO-IN jack on the VET. Again, be sure the external video source switch is set to the desired external video source.

PICTURE QUALITY - When connected to an external video source and in the External Mode, the quality of the image produced by the VET is totally dependent on the quality of the external video source. The VET will not degrade the external video picture quality. However, it will not improve it either. The use of a poor external video source such as a third or fourth generation video tape, a tape recorded from a weak broadcast signal, or a signal coming from a defective VCR may result in jittery characters or

characters may jump up and down or tear. Always use the highest quality external video source possible. Most first and second generation video tapes, video cameras, and video disks provide adequate external video sources.

KEYBOARD FUNCTION REFERENCE
(In Alphabetic Order)

A (Special Function Key - A): This key is used for the Auto Center feature. Three other special function keys (B,C, and CNTL) are intended for use with future expansion cartridges.

ALPHABETIC KEYS (A though Z): These keys insert alphabetic characters into the page memory. They will only perform when th cursor is present, the screen is unblanked (see BORDER‰BLANK key), and when an object is not present (see OBJect key). That is when the cursor is deleted or the screen has been BLANKed or one of the four objects is present, the alphabetic keys will not work.

The Vet is initially set up to enter both upper and lower-case letters. You can enter capital letters by holding down the SHIFT key at the same time an alphabetic key is pressed, or you can set the "caplock" with the CURSOR key (SHIFTed) and capital letters can be entered without the SHIFT key.

The VET will display two different font styles only when an external Font Cartridge has been connected. Without an external Font Cartridge, only the internal font can be displayed. However, when entering characters, the type of cursor present on the screen determines which of the two fonts is stored in page memory without regard to which font style (font-1 or font-2) is seen on the screen at the time the characters are entered.

When a Single-Font cartridge is connected to the VET, Font-1 characters will be displayed in the external font. However, all Font-2 characters will continue to be displayed in the internal font. When a Double-Font Cartridge is connected to the VET, both Font-1 and Font-2 characters are displayed in the two external fonts. It is important to understand that characters are stored in the page memory identified as Font-1 or Font-2.

The only way to change the font identity of a character is to reenter the character using the other font (as specified by the cursor). With this approach, titles can be entered and edited in memory and then viewed using a variety of fonts by simply turning off the VET and connecting a different Font Cartridge.

ARROW KEYS (Up‰Down, Left‰Right): The primery function of these keys is to move the cursor. Moving the cursor does not affect the contents of memory in any way. Existing characters and colors remain unchanged until another character is entered. The Up‰Down Arrow key will move the cursor down (unSHIFTed) or up (SHIFTed). You will also notice that when the Down-Arrow is pressed and the cursor is on the bottom line, it will jump to the top line. A similar response is seen when the cursor is on the top line and the Up-Arrow is pressed. The cursor will jump to the last line.

The Left-Arrow (unSHIFTed) will move the cursor from right to left. It will also move the cursor to the right most position of the next line up after reaching the end of a line. It will also jump from the top left position on the first line to the right most position of the bottom of the page. The Right-Arrow (SHIFTed) will move the cursor to the left most position of the next line after reaching the end of a line. It will also jump to the upper left position after reaching the last position on the bottom line.

The second function of the Arrow keys is to move the objects up, down, left, and right when an object is present on the screen (see OBJect key). The cursor will not be affected by the Arrow keys if an object is present. If the cursor has been deleted and no object is present, the Arrow keys will not perform any function. Furthermore, the Arrow keys will not function if the screen has been BLANKed.

AUTO CENTER (Special Function Key A): Auto Center will enable an operator to center one line at a time or an entire page. The cursor must be present.
Line Center - Put the cursor on the line to be centered; press the A function key on the rightside of the keyboard. The line will automatically center.
Page Center - Cursor can be anywhere on the screen. Hold down the SHIFT key and press the A function key on the rightside of the keyboard. The entire page will automatically be centered.

Immediately after a line or page has been centered, the cursor will return to the upper left hand corner of the screen.

B (Special Function Key - B): See Special Function Key - A

BORDER/BLANK: UnSHIFTed, this key BLANKs the screen. BLANKing the screen causes only the border color to be displayed. If the border color is transparent and you are in External Mode, the external video color will appear without any characters or objects. The BLANK key allows you to display a page of titles precisely when and for as long as you want. The BLANK key can be used to step through several pages of titles when you want periods where no titles are present.

When the SHIFT key is pressed with the BORDER/BLANK key, the border color changes. See the COLOR TABLE for the order in which colors appear. The border color is also displayed wherever the transparent color appears on the screen. That is to say that whenever you are using characters with transparent backgrounds, the border color becomes the background color. (Most of your characters will have transparent backgrounds). This aspect lets you change the border and all background colors with one key. However, you can only see the external video image when the transparent border color is being used. Also note that when the border color is established, it remains in effect for all pages.

C (Special Function Key - C): See Special Function Key - A.

CHARACTER SIZE: Changes characters between two different sizes. Small size-224 characters or 28 columns by 8 rows. Large size-112 characters or 14 columns by 8 rows. Hold down the CONTROL key and press the CURSOR key at the same time.

CLEAR: The Clear key will clear an entire page or line from the screen and memory. The cursor must be present to clear.
Clear Line- Put the cursor on the line to be cleared and press the CLEAR key. The line will be cleared from the screen and memory. The cursor will return to the beginning of the cleared page.
Clear Page- Cursor can be any place on the screen. Hold down the SHIFT key and press CLEAR key. Page will be cleared from the screen and memory. Cursor will return to the beginning of the page. As a safety precaution, only the current page of memory is CLEARed and the CLEAR key will not function when the cursor is not present or when the screen has been BLANKed.

CNTL (Control Key): See Special Function Key - A.

COLOR: The COLOR Key preforms three functions:
1. Changes the color of each line of characters of a title to a dufferent color (SHIFTed or unSHIFTed).

2. Changes the color of each page background.

3. Changes the color of an object when the object is present on the screen. The object color can only be changed when the object is present and conversely you can not change the color of the cursor when an object is present.

16 colors are present for user programming. The following table shows the sequence in which the colors appear.

COLOR TABLE

1. **Transparent**
2. **Black**
3. **Dark Blue**
4. **Light Blue**
5. **Cyan**
6. **Magenta**
7. **Dark Red**
8. **Medium Red**
9. **Light Red**
10. **Dark Green**
11. **Medium Green**
12. **Light Green**
13. **Dark Yellow**
14. **Light Yellow**
15. **White**
16. **High Intesity White**

CURSOR: The cursor determines which font (Font-1 or Font-2) will be identified with a character and the color of a character when it is entered. As indicated earlier, the VET can only display one font until a Font Cartridge is plugged in. Font Cartridges are a means of displaying different font styles when using the format of 8 lines of 16 characters.

The CURSOR key, unSHIFTed, selects the Font-1 cursor, then the Font-2 cursor, then deletes the cursor. After powering-up the VET (and after the logo), the Font-1 cursor is displayed in the first character position on the screen. When the CURSOR key is pressed once (unSHIFTed), the Font-2 cursor is displayed. Pressing the CURSOR key again (unSHIFTed) will delete the cursor altogether. You will want to delete the cursor when you are displaying your titles in a video production.

When no cursor is present, characters can not be entered and the screen can not be CLEARed.

The Font-1 cursor is a solid horizontal line. The color of the cursor designates the color of characters entered. The Font-2 cursor appears as a horizontal line with the middle section cut out and lowered.

Now, more on fonts. The VET contains only one large font style internally. So why is there a Font-2 cursor? Optional single-font and double-font cartridges can be plugged into the expansion port on the right side of the VET. All font cartridges display characters in 8 lines of 16 characters per line. (Different characters sizes can be displayed with Program Cartridges, not Font Cartridges.)

Characters entered using the Font-1 and Font-2 cursors will both be displayed with the internal font when no Font Cartridge is attached. When a Single-Font cartridge is attached, all Font-1 characters contained in the page memory will be displayed in the external font. Font-2 characters will continue to be displayed in the internal font. When a Double-Font cartridge is attached, Font-1 and Font-2 characters contained in the page memory will be displayed in the external fonts.

Remember that changing font cartridges does not effect the font that a particular character is identified with. The only way to change from one font to another is to reenter the character using the other cursor.

When the CURSOR is pressed (SHIFTed), the "cap-lock" is set or cleared. When set, the "cap-lock" allows alphabetic keys to enter capital letters without holding down the SHIFT key. Only alphabetic keys are affected by the "cap-lock".

DIRECT PAGE ACCESS: Allows the user to directly access any specific page at any time. To perform this operation you must:
1. Press the CURSOR key twice (deletes cursor).
2. Type in one or two digits between 1 & 30. An entry greater than 30 is ignored. A zero causes page forwarding.
3. Press the PAGE key. The screen displays the page you selected.
4. Press the CURSOR key one time to retrieve cursor.

NOTE: DIRECT PAGE ACCESS works only when cursor is deleted from screen.

EXT MODE (EXTernal MODE): The EXTernal MODE key puts the VET in and out of External Mode. External Mode causes the VET to synchronize (genlock) to an enternal video signal allowing the VET-generated image to be superimposed over the external image. The External Mode will only function properly when the following conditions are present:
1. An external video signal is present at the camera or external video input.

2. The external video source switch is set to the appropriate external video input.

3. The border color is transparent. The external video image can only be viewed when the border color is transparent. Other border colors can be displayed if a full color background is preferred.

NUMERIC/PUNCTUATION: These 11 keys function like alphabetic keys. The only difference is that the "cap-lock" has no effect on numeric/punctuation keys. One additional aspect needs mentioning. A slash (/) punctuation character is available with the upper-case (SHIFTed) colon (:) key.

OBJ (OBJect Key): There are four objects available to highlight or point out aspects in the external video image: an arrow, an oval frame, a square frame, and an "X". When the OBJect key is pressed (unSHIFTed), you enter the Object Mode and one of the four objects is displayed on the screen. Once an object is present on the screen, you can select one of the other objects by pressing the OBJect key

(SHIFTed) several times until the desired object appears.

You can move the object with the arrow keys and change the object color with the COLOR key (SHIFTed and unSHIFTed). Once you select the desired object, its location and color, you can exit the Object Mode by pressing the OBJect key (unSHIFTed) and the object will be removed from the screen. You will note that the object, the location and color does not change when you exit and reenter the Object Mode. This allows you to show the object at the exact moment and for as long as you want.

Remember that the BLANK key will blank all VET-generated images including the object. Also beware of the transparent object. If you inadvertantly end up with a transparent object (like the transparent cursor), you may go crazy before you figure out what has happened. It will be especially frustrating because you will not be able to enter characters al long as you are in the Object Mode.

PAGE (PAGE Forward, PAGE Back): The PAGE key (unSHIFTed) displays the next page on the screen. When page 30 is reached (the last page), the PAGE Forward key stops responding. The PAGE key (SHIFTed) displays the previous page. If you are on page one, the PAGE Back command will not respond. Both PAGE Forward and PAGE Back will function with the screen BLANKed or unBLANKed, in or out of Object Mode, and with the cursor on or off.

REPEATING KEYS: Allows user to put strings of identical characters on the screen or to move the cursor around using the cursor keys.

RETURN (Carriage RETURN): The RETURN key (SHIFTed or unSHIFTed) functions like a carriage return key on a typewriter. That is, it causes the cursor to move down and to the beginning of the next line. If the cursor is on the bottom line of the screen, the RETURN key will cause the cursor to go to the beginning of the top line.

SHIFT: The two SHIFT keys function like a typewriter shift key. They can be held down to enter uppercase alphabetic and punctuation characters. The SHIFT keys also allow many of the other keys to perform two functions.

SLOW SCROLL: Allows the user to slowly advance through the Page Memory. This can be initiated at any page. To start slow scroll, you must:
1. Delete cursor by pressing the cursor key twice.
2. Hold down the CONTROL key and press the PAGE key.

The VET will not stop scrolling until you down the SPACE BAR for a few seconds. Then the VET will stop at the end of the next page.

SPACE BAR: The SPACE BAR enters null characters on the screen and in the page memory. The SPACE BAR is also used to remove or delete unwanted characters. It can be used to move the cursor as long as there are no characters in the way.

REPLACING THE LITHIUM BATTERY

Does your VET forget the titles you have entered after you turn it OFF?
The VET has a 3-volt coin-type lithium battery that is used by the page memory to remember your titles after the unit has been turned off. This battery should last a year or longer but will eventually have to be replaced. When replacing, use the following battery (or equivilant):

Panasonic BR2325

You will need a small knife and a screwdriver to remove the old battery. Unplug the unit, remove the 3 screws on each side of the unit and lift off the lid. The keyboard is attached to the lid and connected to the base with a ribbon cable. It is not necessary to unplug the ribbon cable to replace the battery.

The battery is located on the front left of the unit. Using the knife blade, lift up the left end of the top bracket of the battery holder about 1/8th of an inch. Then with the knife still in place, insert the screwdriver between the right side of the battery and the battery holder. Twist the screwdriver so that the battery begins to slide out to the left. Once over the lip of the battery holder, the battery should slide out without much trouble.

The new battery should be inserted under the battery holder bracket from the left with the positive pole (+) facing up.

EXPANSION FEATURES OF THE VET

The VET was designed with expandiblity in mind. The expansion port located on the right side of the unit is set up to connect to optional inexpensive expansion cartridges and other devices. (These cartridges are similar to game cartridges on a video game.) There are several types of expansion products under development. MFJ ENTERPRISES, INC. will announce new expansion products as they are developed.

CHARACTER FONT CARTRIDGES (Single and Double)

Character Font Cartridges provide the ability to display different character fonts when using the 8 lines by 16 character format. Your titles can be composed using the internal font and later viewed with a different font. Characters entered using the Font-1 cursor will automatically be displayed using the cartridge font when a single-font cartridge is attached. Characters entered using the Font-2 cursor will continue using the internal font until a double-font cartridge is plugged in.

PROGRAM CARTRIDGES

Program cartridges contain programs that performs special operations and change the format of the VET's image. Program cartridges are necessary to generate character formats (sizes) other than 8 lines of 16 characters. Other features such as zooming will also be possible with program cartridges.

INTERFACE CONNECTORS The VET was designed to interface with several home computers: Apple II™ (including II+ and IIe), Commodore 64™ (and 128), IBM PC™ (and XT), and Radio Shack Color Computer™ (and Color Computer™). Four different interface connectors are available to connect the VET to one of the above computers. Once connected, the VET becomes a slave to the home computer and you can write programs to manipulate the VET image.

Connecting the VET to a home computer does not affect the image generated by the home computer, and it does not allow to superimpose the home computer image over an external image. So what does interfacing buy you?

The VET by itself is not programmable. That is, you can not write a BASIC program to manipulate the VET image and store that program on tape or disk. However, by interfacing the VET to a home computer, you obtain programmability and storage capability (tape or disk).

Be aware that programming images on the VET with one of the above home computers is NOT for the beginning programmer! Documentation is provided with each interface connector and a sample BASIC program demonstrates how "POKE" statements can manipulate the VET's "sprites" (movable objects) on the screen.

Programming the VET with a home computer may overwhelm the novice, but it should provide a tremendous creative outlet for the experienced programmer.

™ - Apple II (II+ and IIe), Commodore 64 (and 128), IBM PC (and XT), and Color Computer (and Color Computer 2) are registered trademarks.